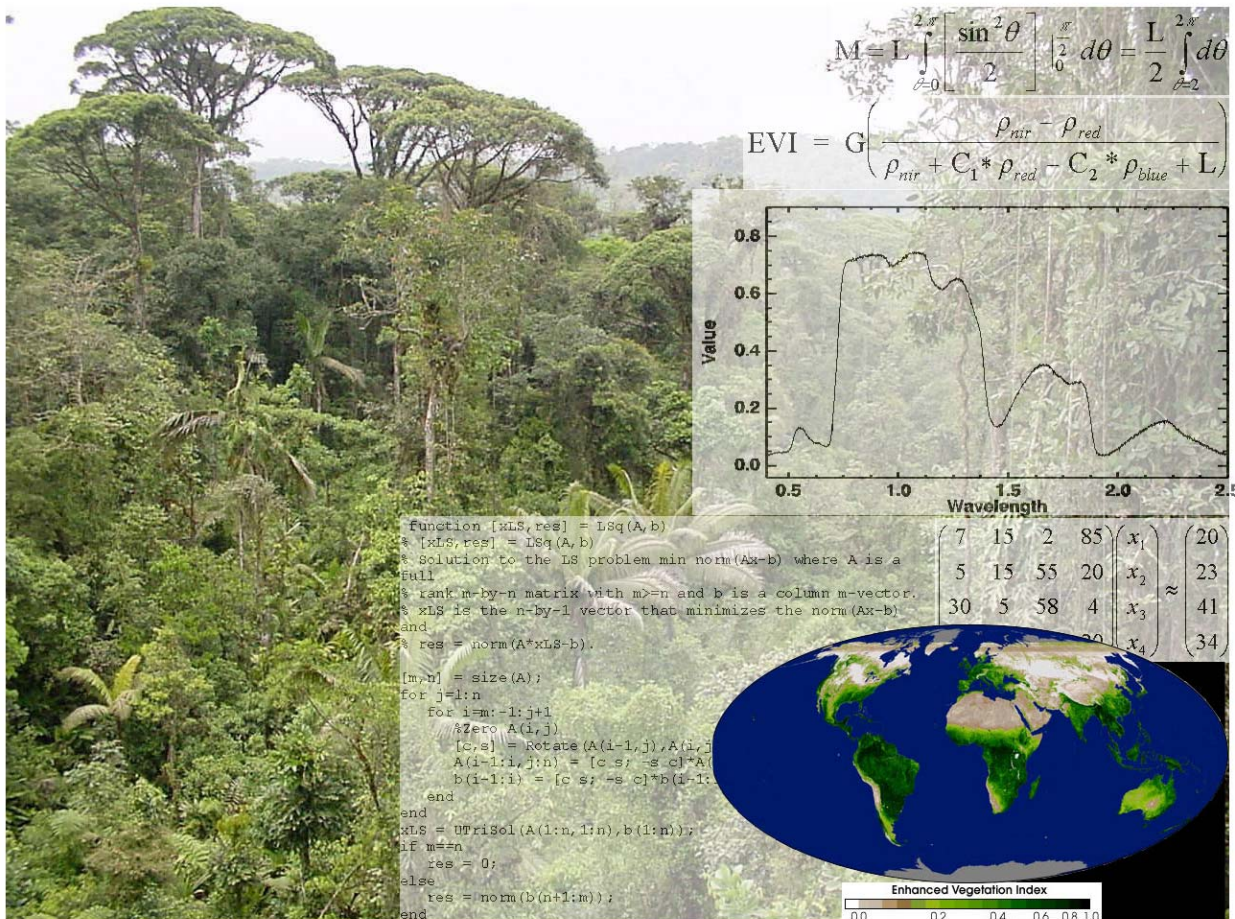


Conference

SPECTRAL REMOTE SENSING OF VEGETATION

March 12 - 14, 2003

US Environmental Protection Agency
National Exposure Research Laboratory
Environmental Sciences Division
Las Vegas, Nevada



March 12, 2003

Day 1 Location: EPA Auditorium

7:30 am	Announcements	David J. Williams	Conference Co-chair
	Welcome	John G. Lyon	Director, Environmental Sciences Division, Las Vegas, Nevada
	Introduction	Terrence Slonecker	Conference Co-chair

KEYNOTE ADDRESS:

Robert O. Green

AVIRIS Experiment Scientist, NASA/JPL

***IMAGING SPECTROSCOPY:
REMOTE MEASUREMENT FOR THE 21st CENTURY***

9:00am Break- Coffee and Refreshments in the Auditorium Lobby

SESSION 1 SPECIES IDENTIFICATION

9:30 am

Chair: Dorsey Worthy	US Environmental Protection Agency, Environmental Sciences Division Landscape Characterization Branch
David Kirtland	U.S. Geological Survey, Geography Discipline

Megan Lewis - The University of Adelaide, Department of Soil and Water, Australia
Hyperspectral Discrimination of Vegetation - What is Possible?

Charles M. Bachmann - Naval Research Laboratory, Remote Sensing Division
Land-Cover Models and Invasive Species Detection in The Virginia Coast Reserve from Airborne Hyperspectral Imagery

Susan Ustin - University of California, Davis, Department of Land, Air, and Water Resources
Mapping Invasive Species using Imaging Spectrometry

Luc Bertels- Flemish Institute for Technological Research (VITO), Teledetection and Atmospheric Processes (TAP)
Species Identification and Stress Detection of Heavy-Metal Contaminated Trees

11:30 Lunch

SESSION 2 LANDSCAPE DYNAMICS

12:30pm

Chairs: **K. Bruce Jones** USEPA, Environmental Sciences Division, Landscape Ecology Branch
David Kirtland U.S. Geological Survey, Geography Discipline

Alfredo Huete - University of Arizona, Department of Soil, Water and Environmental Science
Inter-Sensor Calibration of Vegetation Indices for Monitoring and Continuity Studies of Ecosystem Variability

Daniel Sims – California State University, Los Angeles, Department of Biology
Relationships between Ecosystem CO₂ Flux and Vegetation Spectral Reflectance in Southern California Chaparral

Bert Guindon – Canada Centre for Remote Sensing
Detecting and Quantifying Extended Landscape Structure With Spatial Co-occurrence Surfaces

Mary Love Mortimer-Tagert - Mississippi State University, Department of Plant and Soil Sciences
Employing Remote Sensing to Evaluate Changes in Land Use and Estimate Probable Pesticide Runoff to Surface Waters

2:30pm Break - Refreshments in the Auditorium Lobby

SESSION 3 DETECTION OF VEGETATION STRESS

3:00PM

Chairs: **Chad Cross & Terrence Slonecker** US Environmental Protection Agency,
Environmental Sciences Division

Michael West - The MITRE Corporation
Early Detection of Plant Stress Due to Human Activity via Spectral Remote Sensing

Andreas Brunn - Technische Universitaet Clausthal, Institute of Geotechnical Engineering and Mine Surveying, Germany
Monitoring Mining Induced Plant Alteration and Change Detection in a German Coal Mining Area using Airborne Hyperspectral Imagery

Yi Su - Mississippi State University, Remote Sensing Technologies Center
Monitoring the Impact of Heavy Metals on Plant Reflectance and Internal Leaf Structure during Phytoremediation Process

Prasad Thenkabail – Yale University, Center for Earth Observation
Biomass Estimations and Carbon Stock Calculations in the African Rainforests using High-spatial, High-spectral, and Multi-spectral Satellite Sensor Data

March 13, 2003

SESSION 4 RADAR and THERMAL IR APPLICATIONS

7:00 am

Chairs: **Jiagou Qi** - Michigan State University (MSU), Department of Geography
Barry N. Haack - George Mason University, Department of Geography

Jiagou Qi - MSU

Fusion of Optical and Radar Imagery for Plant Water Stress Detection

Barry N. Haack - George Mason University, Department of Geography

Radar and Optical Data Integration for Vegetation and Other Land Cover Mapping

Gretchen F. Sassenrath-Cole – USDA, Agricultural Research Service

Remote Sensing Methods for Measurement of Soil and Crop Water Status in a Humid Environment

Sunyurp Park - University of Kansas, Department of Geography, Kansas Applied Remote Sensing Program

MODIS Maximum-Temperature Composite Data and Soil Factors for Drought Monitoring in the Central Great Plains

9:00am **Break - Coffee and Refreshments in the Auditorium lobby**

SESSION 5: ADVANCED ALGORITHMS & PROCESSING TECHNIQUES

9:30am

Chair: **Steven Brumby** Department of Energy, Los Alamos National Lab (LANL)
Nonproliferation and International Security Division
Bert Guindon Canada Centre for Remote Sensing

Allen Waxman – Alphatech Inc.

NEURAL FUSION: Multispectral & Multisensor Image Fusion & Mining

Steven Brumby – Department of Energy, Los Alamos National Lab (LANL)

Evolving Feature Extraction Algorithms for Spatio-Spectral Remote Sensing of Vegetation

Bert Guindon - Canada Centre for Remote Sensing

Improving Inter-Scene Radiometric Fusion through Haze Correction and Invariant Targets

Panos M. Pardolos – University of Florida, Department of Industrial and Systems Engineering, Center for Applied Optimization

Remote Sensing of Vegetation and Optimization Methods

12:00 **Lunch**

SESSION 6 FOREST APPLICATIONS

1:00 pm

Chairs: **Drew Pilant and John Iiames** U.S. Environmental Protection Agency
Environmental Sciences Division

Ray Merton – University of New South Wales, Sidney Australia
Mapping Australian Eucalypt Forests: An Investigation of Individual Species and Species Groups using CASI Hyperspectral Data

Mary Martin - University of New Hampshire, Institute for the Study of Earth, Oceans, and Space
The Use of Hyperspectral Remote Sensing in the Assessment of Forest Ecosystem Function

Drew Pilant -USEPA Landscape Characterization Branch, RTP, North Carolina
Analysis of Year 2002 Seasonal Forest Dynamics using Time Series in situ LAI Measurements and MODIS LAI Satellite Products

Xue Liu – George Mason University, Center for Earth Observing and Space Sciences
Comparing NDVI between Linear Mixing and Non-Linear Mixing and Their Application in Forest Cover Change Study

3:00pm Break - Refreshments in the Auditorium Lobby

SESSION 7 SPATIAL ISSUES

3:30 pm

Chairs: **John W. Jones** US Geological Survey, National Mapping Discipline
Ross Lunetta USEPA, Landscape Characterization Branch

Ruggero Casacchia - CNR Institute for Atmospheric Pollution, Rome, Italy
The Role of Spatial Resolution in Vegetation Studies by Hyperspectral Airborne Images

Siamak Khorram - North Carolina State University, Center for Earth Observation
Comparison of Remotely Sensed Data from Different Sensors with Different Spatial and Spectral Resolutions to Characterize Stream Buffer Zones Vegetation

F. Aubrey Harris - Mississippi State University, Delta Research and Extension Center
Remote Sensing and Spatial Technology in Cotton Pest Management

End of day 2a Technical Sessions at 4:30pm
Reconvene at the St Tropez Hotel for the Poster Session, 5-7 pm

Day 2b **Location: St Tropez HOTEL**

SESSION 8

POSTER SESSION

5 – 7 pm

Chair: **Ricardo Lopez** US Environmental Protection Agency

Mike Baker – US Department of Interior, Bureau of Reclamation
Crop Classification for the Lower Colorado River Accounting System (LCRAS)

Luc Bertels- Flemish Institute for Technological Research (VITO), Teledetection and Atmospheric Processes (TAP)
Band Reduction Techniques for Stress Detection in Orchards

Robert W. Davis - Science Applications International Corporation (SAIC), Advanced Technology Applications Division
The Utility of Hyperspectral Remote Sensing To Monitor Environmental Restoration Efforts along the Kissimmee River

Sam Drake – University of Arizona, Office of Arid Lands Studies, Arizona Remote Sensing Center
Comparative Analysis of High-Altitude Aerial Photography and IKONOS Multispectral Imagery for Vegetation Mapping In the U.S. Southwest

Kay Dudek - Colorado State University, College of Natural Resources
Multi-temporal Imaging Spectroscopy of Leafy Spurge Over Theodore Roosevelt National Park, North Dakota

John A. Gamon- University of California, Los Angeles, School of Natural & Social Sciences
Monitoring Spatial and Temporal Patterns of Arctic Primary Productivity with Mobile Spectrometers

Chandra D. Holifield – US Department of Agriculture, Agricultural Research Service, Southwest Watershed Research Center
A Remote Sensing Approach for Estimating Regional Grassland Carbon Dioxide Flux

Alfredo Huete - University of Arizona, Department of Soil, Water and Environmental Science
Seasonal Biophysical Dynamics of the Amazon from Space using MODIS Vegetation Indices

Gail Korenaga – Chevron Texaco
Industry Applications of Remote Sensing for Environmental Management

Ricardo Lopez – US EPA, Landscape Ecology Branch
Determining The Ecological Vulnerability of Macrophyte Species in Wetlands of the Mississippi Alluvial Valley using National Wetland Inventory and Spectral Remote Sensing Data

Stefania Mandrone - CNR Institute for atmospheric pollution, Rome, Italy
Reflectance Spectra to follow Detritus Decomposition Process

Joaquín Meliá – Universidad de Valencia (Spain), Departamento Termodinamica
Monitoring Irrigated Areas in Central Spain and Evapotranspiration Water Consume with Landsat Imagery

Jacob Mundt - Idaho State University, Department of Geosciences
Development and Implementation of Remote Sensing Techniques to Monitor Invasive Plant Species in the State of Idaho

Edgar Rene - Universidad Industrial de Santander, Columbia
Actual Soil Use and Vegetal Coverage Maps of the Basin of the Tona River

Herb Ripley - Hyperspectral Data International, Inc., Nova Scotia, Canada
1) Planning and Execution of Hyperspectral Surveys for Large Aerial Extents
2) Observations on Atmospheric Correction of Hyperspectral Data from the Compact Airborne Spectrographic Imager

Todd Sajwaj - US Environmental Protection Agency, Landscape Ecology Branch
A Regional Approach to Mapping Plant Communities in the American Southwest: The Southwest Regional Gap Analysis Project (SW ReGAP)

Jiang Tang – George Mason University, School of Computational Sciences, Center for Earth Observing and Space Sciences
Content-Based Searching on Earth Science Data Powered by a Histogram Clustering Indexing Technique

Cary Roberts - US Environmental Protection Agency, Office of Environmental Information
Larry Tinney – Lockheed Martin, Environmental Services
Assessing Urban Growth and Land Cover Trends using Remote Sensing Imagery and Landscape Metrics

Allen Waxman – ALPHATECH Inc., Fusion Technology & Systems Division
Neural Fusion: Multispectral & Multisensor Image Fusion & Mining

Ying Zhang – Canada Centre for Remote Sensing
Synoptic Characterization of Forest Distribution and Fragmentation in the Great Lakes Watershed

Nicola Zaccarelli - Università degli Studi di Lecce, Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali, Ecotekne
Mapping of Ecosystem Function at the Landscape Level

Mark Brennan - Space Imaging
Land Cover Classification and Modeling of Ecosystem Carbon Flux in the Barrow Environmental Observatory Using IKONOS Satellite Imagery

Russell Watkins - Advanced Power Technologies Inc.
Application of Hyperspectral Imaging to Remote Sensing of Vegetation

March 14, 2003

Day 3 Location: EPA AUDITORIUM

7:50am Announcements

SESSION 9 FLUORESCENCE APPLICATIONS

8:00 am

Chairs: **Robert L. Fischer** – US Army Corps of Engineers, Topographic Engineering Center (TEC)
John DiBenedetto - Department of Energy, Special Technologies Laboratory/ Bechtel Nevada

Melvin B. Satterwhite - Science Applications International Corporation (SAIC)
Fluorescence Spectra of Plant Foliage

John DiBenedetto - Department of Energy, Special Technologies Laboratory/ Bechtel Nevada
Laser-induced Fluorescence Imaging (LIFI) and Signature Analysis

Robert L. Fischer – USACE, TEC
Trace Chemical Detection through Vegetation Sentinels and Fluorescence Spectroscopy

9:30am Break

SESSION 10: WETLAND/COASTAL APPLICATIONS

10:00 am

Chairs **Elijah Ramsey III** US Geological Survey, National Wetlands Research Center
Ricardo Lopez USEPA, Landscape Ecology Branch

Elijah Ramsey III – USGS, NWRC
Landsat Thematic Mapper Data Used to Map Trends in the Louisiana Coastal Wetland and Adjacent Upland Landscapes; Improving Accuracy and Interpretation of Change

Patrica Kandus - Ciudad Universitaria, Grupo de Investigación sobre Ecología de Humedales, Argentina
Remote Sensing of Wetland Vegetation: Experience on the Paraná River Delta Region -Argentina

Ming Chang – US Environmental Protection Agency, Office of Environmental Information
Assessing the Relationship between Aquatic Indicators, Land Use, and Water Quality in Five Metropolitan Areas

Timothy Donato - Naval Research Laboratory, Remote Sensing Division
*Hyperspectral Characterization of *Spartina alterniflora* Patches*

12:30 After Session QA and Conference Wrap-Up

Acknowledgements:

This conference would not have been a success without the help of the following people.
Thank you for all your hard work and support.

Rosie-Marie Chelhot
Ruth Christianson
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Kimberly Johnson
Susan Jackson
Rachel Laughrige
Brian Spavin
Ricardo Lopez
Lorraine Payne